

1760-577
a) binding a light-transmitting sheet larger than said supporting substrate to an associated side of said supporting substrate with an adhesive layer containing a pressure-sensitive adhesive; and

b) cutting off a region of said light-transmitting sheet that is unbonded to said supporting substrate by laser processing;

wherein the light transmitting sheet is formed of one resin selected from the group consisting of polycarbonate, polyarylate, and cyclic polyolefin.

21. (New) A method of recording information, which comprises contacting an information recording surface of the optical information medium of Claim 7, with recording light or reproducing light or both.

REMARKS

Claims 1-6 have been cancelled. New Claims 7-21 have been added and are now active in this application.

REQUEST FOR RECONSIDERATION

Optical information media are required to exhibit increased recording densities and capacities in order to store increasing amounts of information.

In order to meet the higher recording densities required therefor, it has been proposed to utilize shorter recording and reproducing wavelengths with increased numerical aperture (NA) of an objective in a recording and reproducing optical system, thereby reducing a diameter of the recording and reproducing laser beams. As the NA increases, however, the

tilt margin decreases.¹ Further, as the optical recording medium tilts with respect to a laser beam, wavefront aberration occurs.

Moreover, in order to record moving images of higher quality, structures enabling thinner substrates have been proposed. However, it is very difficult to form a light-transmitting layer for such a structure using resin injection molding.

However, the present invention provides an optical information recording medium wherein a light-transmitting layer exhibits a uniformed thickness so that optical heterogeneity of the light-transmitting layer can be reduced, and warping of the optical information medium is prevented.

In particular, and in part, the present invention provides an optical information medium, which contains a supporting substrate, an information-recording surface provided on the supporting substrate and a light-transmitting layer provided on the information-recording surface, while recording light or reproducing light or both incident on the information-recording surface through the light-transmitting layer, wherein:

the light-transmitting layer contains a light-transmitting sheet formed of a resin and an adhesive layer containing pressure-sensitive adhesive for bonding the light-transmitting sheet to an associated side of the supporting substrate; and

the light-transmitting sheet is formed of one resin selected from the group consisting of polycarbonate, polyarylate and cyclic polyolefin.

¹The tilt margin is the tolerance of the tilt of an optical recording system with respect to an optical system and is determined by the numerical aperture. See page 1, lines 24-36 of the present specification.

W/D
Claims 1 and 5 stand rejected under 35 U.S.C. §103(a) as being obvious of Yoshiaki et al (JP 10269624A). However, this reference clearly fails to either disclose or suggest the present invention.

Notably, this reference merely describes a light transmission layer formed on an information recording layer on a main surface of a transparent substrate after dispersing space or pressurized particles into a photosetting resin. It is noted that the light-transmitting layer of this reference is not two-layered.

Thus, it is quite clear that this reference fails to either disclose or suggest the use of a pressure-sensitive adhesive (PSA) layer between the recording layer and the light sensitive layer as in the present invention. In contrast, advantages 1)-4) described at page 5 of the present specification are noted, which accrue from the use of the present pressure-sensitive adhesive.

Specifically, the use of the adhesive layer for the bonding of the light-transmitting sheet to the associated side of the supporting substrate has the following advantages:

- 1) curing is unnecessary, unlike when a ultraviolet-curing adhesive agent is used, and the medium is less susceptible to warpage due to shrinkage of resin upon curing;
- 2) since there is no distortion by resin shrinkage upon curing, there is little or no increase in the index of birefringence of the light-transmitting sheet;
- 3) the lack of need for a curing step means that equipment otherwise needed therefor can be avoided; and
- 4) the adhesive layer used in the present invention can be previously formed as a coating film on the light-transmitting sheet, thus offering a reduced thickness profile.

Clearly, Yoshiaki et al would fail to place one skilled in the art in possession of the present invention.

Hence, this ground of rejection is believed to be unsustainable and should be withdrawn.

Uphold
Claims 3 and 4 stand rejected under 35 U.S.C. §103(a) as being obvious over Yoshiaki et al in view of Mikio et al (JP 62003443A). However, Mikio et al fail to correct the deficiencies of Yoshiaki et al.

In particular, Mikio et al merely describe a recording layer having a protecting layer thereon made of polycarbonate formed by a casting method. The protecting layer acts as a light transmitting layer due to its transparency and absorption of light waves. However, it is not seen how this would correct the deficiencies of Yoshiaki et al as Mikio et al fail to either disclose or suggest the present adhesive layer.

Hence, this ground of rejection is believed to be unsustainable and should be withdrawn.

Claim 2 stands rejected under 35 U.S.C. §103(a) as being obvious over Yoshiaki et al in view of Ikenaga et al (U.S. 4,719,171). However, Ikenaga et al fail to correct the deficiencies of Yoshiaki et al.

In particular, Ikenaga et al merely describe a disk having a light transmitting layer doubling as a protective layer, where the protective layer is formed with a transparent resin, such as an acrylate resin. The Examiner has drawn attention to column 11, line 57 - column 12, line 4.

However, it is respectfully submitted that the Examiner's characterization of the reference is in error inasmuch as Ikenaga et al describe that:

It is for this reason that the surface protective layer for the metal coating layer 3 needs to be formed of a transparent resin so that it can play the role of light transmitting layer. As such transparent resins, acrylate ultraviolet ray setting resins, methacrylate resins, urethane resins, silicone resins, epoxy resins, etc. may be mentioned. (See col. 11, lines 57 - col. 12, line 4).

Thus, it is clear that in Ikenaga et al, the acrylate resin is used as a light transmitting layer and not as an adhesive as postulated by the Examiner. Further, this reference fails to either disclose or suggest a pressure-sensitive adhesive as in the present invention, and certainly neither discloses nor suggests the advantages thereof.

Hence, this ground of rejection is also believed to be unsustainable and should be withdrawn.

Claim 6 stands rejected under 35 U.S.C. §103(a) as being obvious over Yoshiaki et al in view of Tamura (U.S. 5,328,816). However, the latter reference fails to correct the deficiencies of the former cited reference.

In particular, Tamura et al also fails to disclose or suggest the use of a pressure-sensitive adhesive. Rather, this reference has merely been cited to show laser cutting to produce information media.

Hence, this ground of rejection is also believed to be unsustainable and should be withdrawn.

Clearly, even the combined teachings of all of the references of record would fail to place one skilled in the art in possession of the present invention.

Accordingly, in view of all of the above, it is believed that the present application now stands in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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IN THE SPECIFICATION

Page 1, after line 3, insert:

--FIELD OF THE INVENTION--

Page 1, after line 6, insert:

--DESCRIPTION OF THE BACKGROUND--

Page 3, after line 22, insert:

--SUMMARY OF THE INVENTION--

Page 3, line 33, delete in its entirety.

Page 4, line 28, delete in its entirety, and insert therefor:

--BRIEF DESCRIPTION OF THE DRAWING--

Page 4, line 31, delete in the entirety, and insert therefor:

--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--

IN THE CLAIMS

Claims 1-6 (Cancelled).

Claims 7-21 (New).

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